

KEY

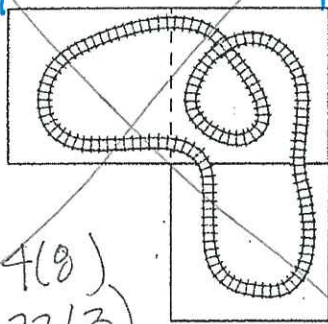
CW#20: Area of Circles
Geometry

Name: _____ TP: _____

RS	MEA502: Compute the area and circumference of circles after identifying necessary information.
Objective	3.6: Find area of a circle.

Take out CW#19 in order for us to get more practice working with interior and exterior angles of a triangle. Your teacher will tell you what problems to finish on CW#19, if you finish those early, complete the additional quiz review problems below:

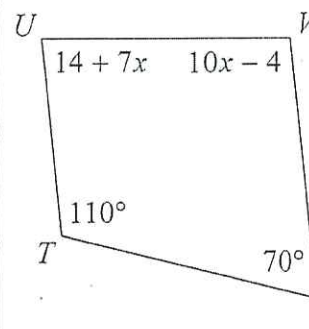
- 1) Two 4-by-8-foot rectangular sheets of plywood overlap to form the base for a model train layout, as illustrated in the figure below. What is the area of this L-shaped region, in square feet? 4.8



- F. 16
G. 32
H. 48
J. 64
K. 96

- 2) Find the measure of the given angle:

$m\angle V$



$$190 + 17x = 360$$

$$17x = 170$$

$$x = 10$$

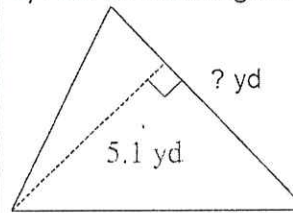
$$m\angle V = 10(10) - 4$$

$$100 - 4$$

$$m\angle V = 96^\circ$$

- 3) The length of a rectangle is half the width. If the perim. is 24 m, A rectangle is 4 times as long as it is wide. The area of the rectangle is 196 square centimeters. What is the perimeter of the rectangle, in centimeters?
A. 35
B. 56
C. 70
D. 88
E. 149
- What is the measure of the length & width?
- $W = \frac{1}{2}W$
 $2(W) + 2(\frac{1}{2}W) = 24$
 $3W = 24$
 $W = 8m$
 $L = 4m$

- 4) Find the missing side: (Round tenth)



$$A = \frac{1}{2}BH$$

$$17.1 = \frac{1}{2}(x)(5.1)$$

$$17.1 = 2.55x$$

$$x = 6.7 yd$$

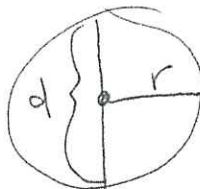
Area = 17.1 yd²

NEW STUFF!

Picture:

Formula:

Circle with radius "r" and diameter "d"



Area: πr^2

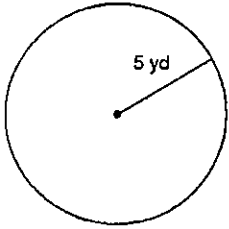
$\pi = 3.14$
* Have them use the π button! *

PUSH IT TO THE LIMIT.

* Have them write answer BOTH ways:

Area of a Circle EX: 1.5π & $2) 15.7$

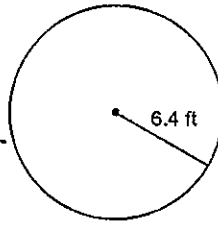
Example 1: Finding the area of the circle. Use your calculator's value of pi. Round your answer to the nearest tenth.



$$\pi(5)^2 = 25\pi \text{ yd}^2$$

$$78.5 \text{ yd}^2$$

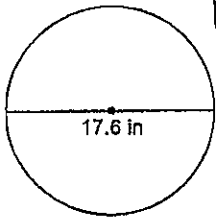
1) Finding the area of the circle. Use your calculator's value of pi. Round your answer to the nearest tenth.



$$\pi(6.4)^2 = 40.96\pi \text{ ft}^2$$

$$128.7 \text{ ft}^2$$

Example 2: Finding the area of the circle. Use your calculator's value of pi. Round your answer to the nearest tenth.



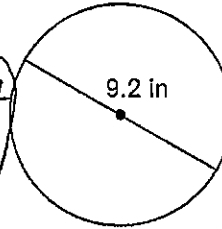
$$D = 17.6 \text{ in.}$$

$$R = \frac{17.6}{2} = 8.8$$

$$A = \pi(8.8)^2 = 77.4\pi \text{ in}^2$$

$$243.3 \text{ in}^2$$

2) Finding the area of the circle. Use your calculator's value of pi. Round your answer to the nearest tenth.



$$D = 9.2 \text{ in}$$

$$R = \frac{9.2}{2} = 4.6 \text{ in.}$$

$$A = \pi(4.6)^2$$

$$= 21.16\pi \text{ in}^2$$

$$66.5 \text{ in}^2$$

Example 3: If the area of a circle is $36\pi \text{ km}^2$, what is the radius and diameter?

$$A = 36\pi$$

$$A = \pi r^2$$

$$36\pi = \pi r^2$$

$$\sqrt{36} = \sqrt{r^2}$$

$$6 = r$$

$$R = 6 \text{ km}$$

$$D = 6(2) = 12 \text{ km}$$

3) How many centimeters long is the radius and diameter of a circle whose area is $81\pi \text{ cm}^2$?

$$A = \pi r^2$$

$$81\pi = \pi r^2$$

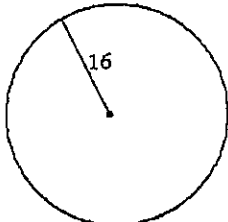
$$\sqrt{81} = \sqrt{r^2}$$

$$9 = r$$

$$r = 9 \text{ cm}$$

$$d = 9(2) = 18 \text{ cm}$$

4) The area of the circle is...



A. 16π

B. 32π

C. 256π

D. 1024π

$$\pi(16)^2 = 256\pi$$

5) Which expression below gives the area of a circle?

A. $2\pi r$

B. $\frac{1}{2}\pi r$

C. πr^2

D. πd

PUSH IT TO THE LIMIT.

6) How many centimeters long is the radius and diameter of a circle whose area is $121\pi \text{ cm}^2$?

$$A = \pi r^2$$

$$121\pi = \pi r^2 \quad r = 11$$

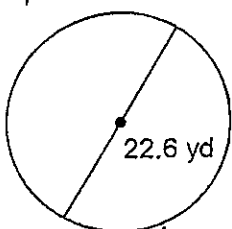
$$\sqrt{121\pi} = r^2$$

Radius: 11 cm
Diameter: 22 cm

7) How many centimeters long is the radius and diameter of a circle whose area is $144\pi \text{ cm}^2$?

Radius: 12 cm
Diameter: 24 cm

8) Find the area:

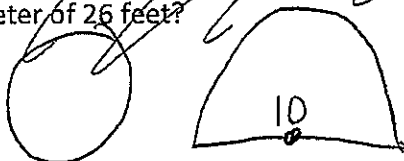


$$22.6/2 = 11.3$$

$$\pi(11.3)^2 = 127.69\pi \text{ yd}^2$$

$$401.1 \text{ yd}^2$$

9) Challenge. a) You lay 10 inch long bricks end-to-end around the border of a circular garden. How many bricks do you need for each garden if it has a diameter of 26 feet?

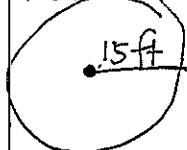


b) The bricks are sold in bundles of 100. How many bundles should you buy?

The area is...

$$\pi(5)^2 = 78.54(1/2) = 39.27$$

10) You are filling a circular pig pen with dirt. The pen has a radius of 15 feet. The dirt costs \$15.00 per square foot. How much money will it cost to fill the pig pen?



$$\pi(15)^2 = 706.9 \text{ ft}^2$$

$$(\$15)$$

\$10,603.50

11) What is the diameter of a circle that has an area of 256π square units?

$$A = \pi r^2 \quad D = \frac{16}{2}$$

$$256\pi = \pi r^2 \quad D = 8 \text{ units}$$

$$\sqrt{256} = r^2$$

$$16 = r$$

ACT Style!

12) A circle has an area of 30 square inches. If you double the radius, what will its new area be?

A. 60 sq in
B. 120 sq in
C. 450 sq in
D. 900 sq in

$$A = \pi r^2$$

$$30 = \pi r^2$$

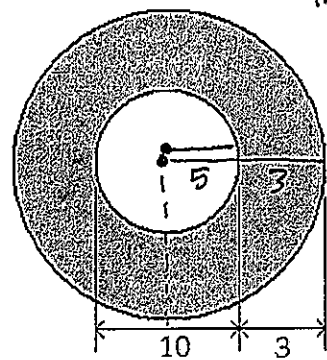
$$\sqrt{9.5} = r^2$$

$$3.1 = r$$

$$3.1(2) = 6.2$$

$$\pi(6.2)^2 = 120.8$$

13) Find the area of the shaded ring below.



$$\pi(5)^2 = 78.5$$

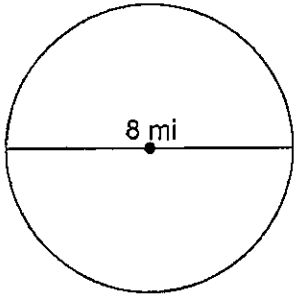
$$\pi(3)^2 = 28.26$$

A. 122.52
B. 201.06
C. 216.77
D. 452.39

PUSH IT TO THE LIMIT.

Exit Slip (Project).

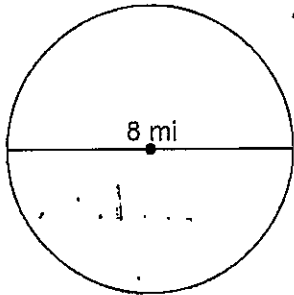
1) Find the area:



2) The area of a circle is 49π square units. What is the ~~diameter~~, in units, of the circle?
radius

Exit Slip w/answers.

1) Find the area:



$$\begin{aligned} D &= 8 \\ R &= 4 \\ \pi(4)^2 &= 16\pi \text{ mi}^2 \\ &= 50.3 \text{ mi}^2 \end{aligned}$$

2) The area of a circle is 49π square units. What is the ~~diameter~~, in units, of the circle?
radius

$$\begin{aligned} A &= \pi r^2 \\ 49\pi &= \pi r^2 \\ \frac{49\pi}{\pi} &= \frac{\pi r^2}{\pi} \\ 49 &= r^2 \\ \sqrt{49} &= \sqrt{r^2} \\ 7 &= r \\ \text{units} \end{aligned}$$

Key

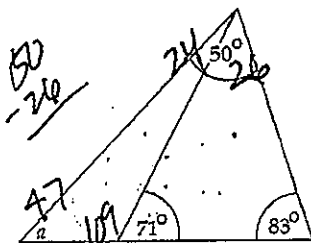
CW#21: Circumference of Circles
Geometry

Name: _____ TP: _____

CRS	MEAS02: Compute the area and circumference of circles after identifying necessary information.
Objective	3.5: Find circumference of a circle.

Review!

1) What is the value of a in the picture below?



A. 47° B. 49° C. 52° D. 59°

2)

The area of a circle is 121π square units. What is the diameter, in units, of the circle?

- F. π
G. 11
H. 22
J. 11π
K. 121

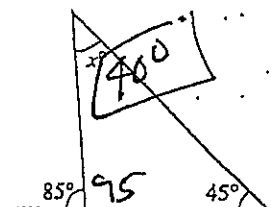
$$\pi r^2 = 121\pi$$

$$\sqrt{r^2} = \sqrt{121}$$

$$r = 11$$

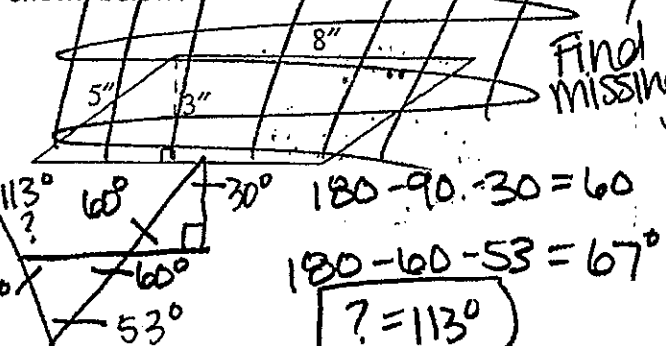
$$11(2) = 22$$

3) A triangle has one interior angle that has a measure of 45 degrees, another interior angle that has a measure of x degrees, and an exterior angle that has a measure of 85 degrees, as shown below. What is the value of x ?



$$180 - 67 = 113$$

4) What is the perimeter, in inches, of the parallelogram shown below?



$$180 - 90 - 30 = 60$$

$$180 - 60 - 53 = 67$$

$$? = 113$$

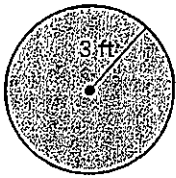
NEED TO KNOW!	Picture:	Formula:
<p>Circle with radius "r" and diameter "d"</p> <p>$\pi = 3.14$</p>		<p>Circumference:</p> <p>$2\pi r = C$</p> <p>2 or $d\pi = C$</p>

PUSH IT TO THE LIMIT.

Finding circumference:

Round all answers to nearest hundredth

Example 1: Find the circumference of the circle.



$$2\pi(3)$$

$$6\pi \text{ or}$$

$$18.84 \text{ ft}$$

Example 2: An orange sliced in half has a diameter of 5 inches. Find the circumference.



$$5\pi \text{ in or } 15.7 \text{ in}$$

1) A quarter has a radius of 12.1 mm. Find the circumference of the quarter.

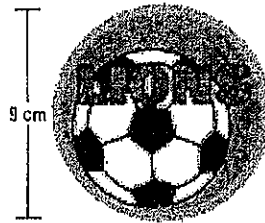


$$2\pi(12.1)$$

$$24.2\pi \text{ or}$$

$$76 \text{ mm}$$

2) Mr. Begres is ordering circular cloth patches for the soccer team's uniform. If the diameter is 9 cm, find the approximate circumference of the patch.



$$C = \pi d = \pi(9) = 9\pi \text{ cm}$$

$$28.26 \text{ cm}$$

Example 3: A circular dish of pasta has a circumference of 84.8 cm. What is the diameter of the wheel? What is the radius?



$$C = 2\pi r$$

$$84.8 = d\pi$$

$$27 \text{ cm} = d$$

3) A bicycle tire has a circumference of 56 inches. What is the diameter of the wheel? What is the radius?



$$C = 56$$

$$C = \pi d$$

$$56 = \pi d$$

$$17.83 \text{ in} = d$$

$$8.92 \text{ in} = r$$

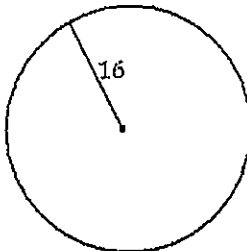
4) The distance around the outside of a circle may also be called which of the following?

- A. diameter
- B. area
- C. radius
- D. circumference

5) Which expression below gives the perimeter of a circle?

- A. πr
- B. $2\pi d$
- C. both are correct
- D. neither are correct

6) The circumference of the circle is...



$$2\pi r$$

$$2\pi(16)$$

$$32\pi$$

- A. 16π
- B. 32π
- C. 256π
- D. 1024π

Challenge:

$$a) C = 2\pi r$$

$$C = \pi d$$

$$980.2$$

PUSH IT TO THE LIMIT.

$$10 = 198 \text{ bricks}$$

7) If the official basketball of both men's N.B.A. and N.C.A.A. leagues has a circumference of 30 cm, what is the diameter of the basketball? What is the radius?



$$C = 30 \text{ cm}$$

$$30 = \pi d$$

$$9.55 = d$$

$$4.78 \text{ cm} = r$$

Name: Key TP: _____

Failure to show work on all problems or use complete sentences will result in a LaSalle.

- 1) A circle has a circumference of 18 ft. What is its area?

$$C = 18$$

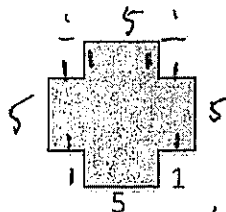
$$2\pi r = 18$$

$$r = 28.27$$

$$\pi(28.27)^2$$

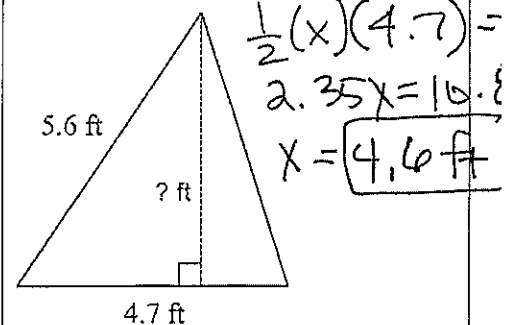
- A. 25.78 ft²
B. 103.13 ft²
C. 254.47 ft²
D. 1017.88 ft²
E. 2511.5 ft²

- 2) In the square below, 1 ft by 1 ft corners have been cut out. Find the perimeter and area of the remaining figure.



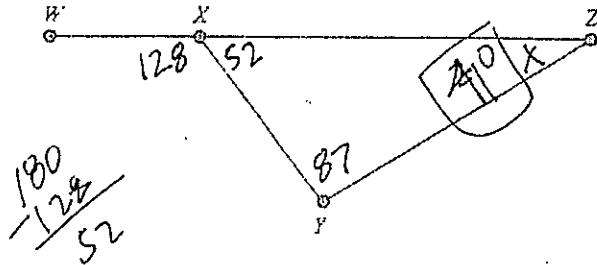
Perimeter: 28 ft
Area: 45 ft²

- 3) Find the height in the triangle below:

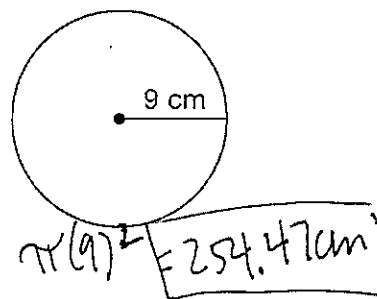


Area = 10.8 ft²

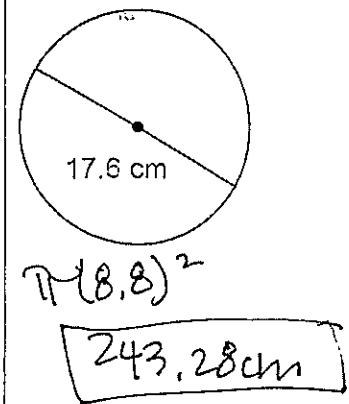
- 4) In the figure below, W, X, and Z are collinear. If the measure of angle Y is 87° and the measure of angle YXW is 128°, what is the measure of angle Z?



- 5) Find the area of the circle below:



- 6) Find the area of the circle below:



- 7) How many millimeters long is the diameter of a circle whose area is 49 π mm²?

$$\pi r^2 = 49$$

$$r^2 = 15.6$$

$$r = 3.95$$

$$d = 7.9 \text{ mm}$$

- 8) Find the diameter of a circle if the area is 387.1 m².

$$\pi r^2 = 387.1$$

$$r^2 = 123.22$$

$$r = 11.1 \text{ m}$$

$$d = 22.2 \text{ m}$$

- 9) Find the radius of a circle if the area is 482.3 m².

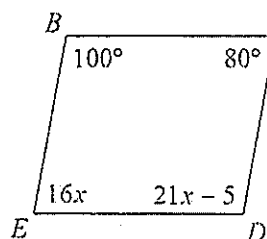
$$\pi r^2 = 482.3$$

$$r = 12.39$$

- 10) A farmer ties his goat to a stake in the ground outside of the barn to keep it from chewing on the fencing. When attached to the stake, the goat can eat grass that is 12 feet or less from the stake in any direction. If the farmer leaves the goat out all day and it eats every piece of grass it can reach, what is the area of lawn the goat destroyed? (draw a picture!)

$$\pi(12)^2 = 452.39 \text{ ft}^2$$

- 11) Find the measure of Angle E:



$$37x + 175 = 180$$

$$37x = 5$$

$$x = 5/37$$

$$\angle E = 16(5/37)$$

$$\angle E = 2.16$$

GRASP REVIEW! (Mind the GAP with complete sentences!)

When describing the growth of a population, the passage of time is sometimes described in generations, a generation being about 30 years. One generation ago, you had two ancestors (your parents). Two generations ago, you had four ancestors (your grand- parents). Ninety years ago, you had eight ancestors (your great-grandparents). How many ancestors did you have 300 years ago? 900 years ago?

G

R

A

S

P

$$2^2 = 4$$

$$2^3 = 8$$

$$\rightarrow 90/30 = 3$$

$$300/30 = 10$$

$$2^{10} = 1024$$

$$\rightarrow 900/30 = 30$$

$$2^{30} = 1073741824$$

STAY READY.

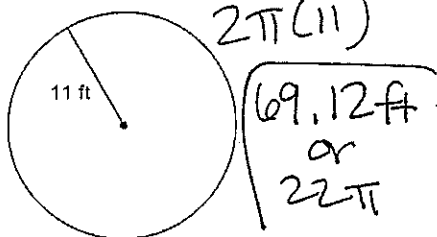
Name: Key TP: _____

HW#26 Circumference of Circles
Geometry
Due Date: Friday, Oct. 12th, 2012

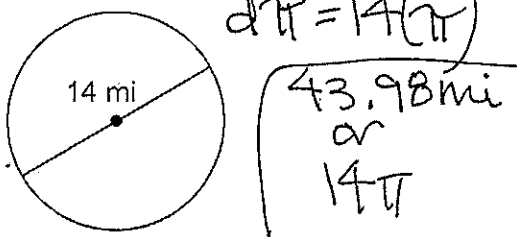
Failure to show work on all problems or use complete sentences will result in a LaSalle.

a) Write answer with π . B) Write answer rounded to the nearest tenth.

1) Find the circumference of the circle below:



2) Find the circumference of the circle below:



3) A car tire has a circumference of 64 inches. What is the diameter of the wheel? What is the radius?

Handwritten: $C = 64$
 $d = 20.37 \text{ in}$
 $r = 10.19 \text{ in}$

4) The perimeter of a rectangle is 42 centimeters. The width of the rectangle is twice as long as its length. Find the length and width of the rectangle.

Handwritten: $W = 2L$
 $2L + 2(2L) = 42$
 $6L = 42$
 $L = 7 \text{ cm} / W = 14 \text{ cm}$

5) Linoleum floor tiles are each 1-foot square. What is the minimum number of these tiles needed to tile the entire floor of a 13-foot-by-15-foot rectangular kitchen and a 6-foot-by-8-foot rectangular bathroom?

Handwritten: $13(15) + 6(8) = 243 + 48 = 291 \text{ tiles}$

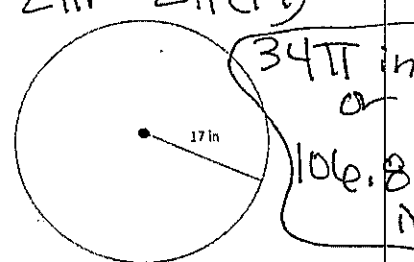
6) Find the radius and diameter of a circle if the area is 359.7 yd^2 . How many 1 foot by 1 foot tiles would be needed to cover both a floor that is 15 feet by 9 feet and a 4 foot by 8 foot long hallway?

Handwritten: $\pi r^2 = 359.7$
 $r^2 = 114.49$
 $r = 10.7 \text{ ft} / d = 21.4 \text{ ft}$

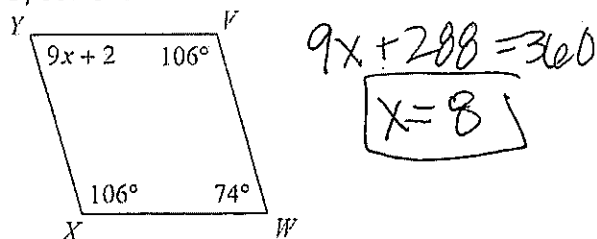
7) A square has area of 169 in^2 . Find the side length and perimeter of the square.

Handwritten: $S^2 = 169$
 $S = 13 \text{ in}$
 $P = 13(4) = 52 \text{ in}$

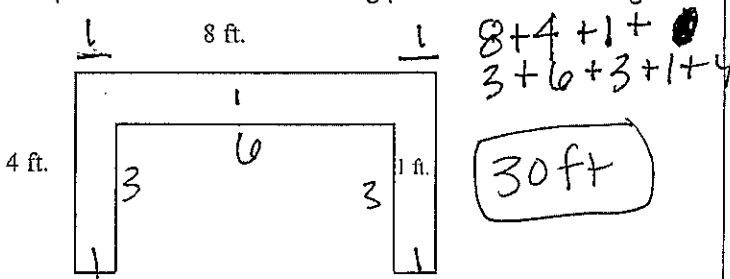
8) What is the circumference of the circle?



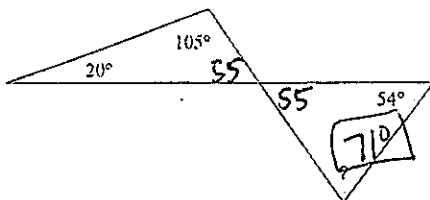
9) Solve for x:



10) A cut is made from the bottom of a 4 foot by 8 foot rectangle so that it leaves a 1 foot strip along the remaining sides as shown in the diagram below. What is the perimeter of the remaining portion of the rectangle?



11) Find the measure of the indicated angle.



12) The area of a triangle is 120 ft^2 . The base of the triangle is 10 ft. long. What is the height of the triangle?

Handwritten: $A = 120$
 $\frac{1}{2}bh$
 $\frac{1}{2}(10)h = 120$
 $5h = 120$
 $h = 24 \text{ ft}$

PUSH IT TO THE LIMIT.

GRASP REVIEW! (Mind the GAP with complete sentences!)

To buy a ticket for a weekly state lottery, a person selects 6 integers from 1 to 36, the order not being important. There are 1947792 such combinations of six digits. Alex and nine friends want to win the lottery by buying every possible ticket (all 1947792 combinations), and plan to spend 16 hours a day doing it. Assume that each person buys one ticket every five seconds. What do you think of this plan? Can the project be completed within a week?

G

$$\frac{1947792 \text{ tickets}}{5 \text{ sec}} = 389558.4 \text{ tickets/sec}$$

$$389558.4 \text{ sec} \times \frac{1 \text{ min}}{60 \text{ sec}} \times \frac{1 \text{ hr}}{60 \text{ min}} = 108.211 \text{ hours}$$

R

$$\frac{108.211}{16} = 6.73 \text{ days}$$

A

$$1947792 \times 5 = 9738960 \text{ seconds} \cdot \frac{1 \text{ min}}{60 \text{ sec}} \cdot \frac{1 \text{ hour}}{60 \text{ min}} =$$

$$2705.27 \text{ hours} / 16 = \text{No, would take } 169 \text{ days.}$$

S

P

STAY READY.